

论文

应用混合分布研究银川平原地下水埋深对植被的影响

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摘要:

银川平原地处西北干旱地区,自然生态环境在西北地区具有典型性。研究银川平原的生态环境,需要研究植被,它反映多种因素的作用。在影响植被的各种因素中,地下水对植被生长的影响非常重要,但将地下水对植被生长的影响进行定量分离并不容易。近年来,用混合分布函数处理大量数据的方法受到越来越多的关注,但是混合分布函数的参数求解一直比较困难。文章提出了一种基于混合分布函数和数据直方图之间的关系,用最小二乘法估计参数的新方法;并用这种方法,结合银川平原遥感数据中的归一化植被指数NDVI,对地下水埋深与植被生长的关系进行定量分析,得到地下水埋深对植被影响所服从的正态分布密度函数。

关键词: [混合分布](#); [最小二乘法](#); [直方图](#); [NDVI](#); [地下水](#)

The effect of groundwater level on the vegetation from the mixture of distributions in Yinchuan plain, northwest China.

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Abstract:

The condition of natural eco environment in Yinchuan plain located in the arid northwestern area is typical in China. MODIS NDVI is one of the important indexes that represent the condition of natural eco environment, which is influenced by various factors. Groundwater is the most important one among the factors, but it is difficult to make full use of data concerning groundwater to establish a mathematical model and to draw a quantitative conclusion. Currently, the study on the mixture of distributions has received widespread attention, but the reliable estimation of the parameters in the mixture of distributions is quite difficult. A method, based on the relation between the mixture of distributions and the histogram of data, and using least squares to estimate the parameters, is introduced in this paper. The relation between groundwater and vegetation in Yinchuan Plain is discussed on the basis of the new method, using MODIS NDVI and groundwater monitoring data. The normal distribution of the effect of groundwater on vegetation in Yinchuan plain is founded.

Keywords:

[Key words: mixture of distributions; least squares; histogram of data; NDVI; groundwater](#)

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